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November 27, 2014

Dr. Maria Cruz
Science/AAAS
1200 New York Avenue NW
Washington DC 20005
United States

Dear Dr. Cruz:

Please find enclosed a report for submission to Science entitled “The Occurrence of Earth-Like Planets Around Other Stars.” The submission comprises approximately 2500 words of text, including four figures (with captions).

The main result of our paper is a measurement of η_{\oplus} , the number density of Earth-sized planets in Earth-like orbits about stars similar to the sun. Our measurement uses the complete data release from the final quarter of operation of the Kepler satellite (Q17). The quantity η_{\oplus} is of broad scientific interest. Its estimation is a chief goal of NASA’s Kepler mission, but is complicated by the difficulty of detecting Earth-like planets about other stars (i.e. selection effects); we deal with this difficulty using an innovative statistical technique that simultaneously fits the intrinsic distribution of planet periods and radii and a parameterised model of the Kepler selection function. In addition to constraining η_{\oplus} , we have modelled the distribution of planet orbital periods and radii and find that it is well-fit by a single Gaussian component. Our approach to reconstructing the intrinsic distribution of planet periods and radii is generally applicable to any survey with significant selection effects.

We thank you for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read 'Will Farr', written in a cursive style.

Will Farr